

Species Listing PROPOSAL Form:
Listing Endangered, Threatened, and Special Concern Species in Massachusetts

Scientific name: *Ranunculus pensylvanicus*

Current Listed Status (if any): **Threatened**

Common name: **Bristly Buttercup**

Proposed Action:

 Add the species, with the status of :

 Remove the species

 X Change the species' status to: **Special Concern**

Change the scientific name to:

Change the common name to:

(Please justify proposed name change.)

Proponent's Name and Address:

Melissa Dow Cullina, Botanist
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581

Phone Number: **508-389-6366**

Fax:

E-mail: **melissa.cullina@state.ma.us**

Association, Institution or Business represented by proponent: **NHESP**

Proponent's Signature:

Date Submitted: **February 14, 2008**

Please submit to: Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, 1 Rabbit Hill Road, Westborough, MA 01581

Justification

Justify the proposed change in legal status of the species by addressing each of the criteria below, as listed in the Massachusetts Endangered Species Act (MGL c. 131A) and its implementing regulations (321 CMR 10.00), and provide literature citations or other documentation wherever possible. Expand onto additional pages as needed but make sure you address all of the questions below. The burden of proof is on the proponent for a listing, delisting, or status change.

- (1) **Taxonomic status.** Is the species a valid taxonomic entity? Please cite scientific literature.

***Ranunculus pensylvanicus* L.f. is a valid taxonomic entity. It was first described in 1782 in *Suppl. Pl.* 272.**

- (2) **Recentness of records.** How recently has the species been conclusively documented within Massachusetts?

***Ranunculus pensylvanicus* has been observed numerous times in Massachusetts during the past 20 years. According to NHESP data, the species was most recently observed by Karen Searcy in the town of Agawam during 2007.**

(3) **Native species status.** Is the species indigenous to Massachusetts?

Yes, this species is native to Massachusetts (Sorrie and Somers, 1999).

(4) **Habitat in Massachusetts.** Is a population of the species supported by habitat within the state of Massachusetts?

Yes, *Ranunculus pensylvanicus* is found in Massachusetts along marsh edges, open swales, pond shores, drawn down glacial kettle-holes, edges of or openings in floodplain forests or other alluvial wetlands (NHESP data; Benson, 1941; Fernald, 1950; Crow and Hellquist, 2000; Flora of North America Editorial Committee, 1997). Usually it grows in open to partly-shaded areas on exposed soil.

(5) **Federal Endangered Species Act status.** Is the species listed under the federal Endangered Species Act? If so, what is its federal status (Endangered or Threatened)?

No.

(6) **Rarity and geographic distribution.**

(a) Does the species have a small number of occurrences (populations) and/or small size of populations in the state? Are there potentially undocumented occurrences in the state, and if so, is it possible to estimate the potential number of undocumented occurrences?

Nineteen occurrences (populations) are currently known to be extant in Massachusetts. In contrast, when the species was listed as Threatened by Program Botanist Bruce Sorrie in 1989, only three current populations were known. Over time, more populations have been discovered by additional field inventory in Berkshire, Hampden, and Worcester Counties. We estimate that, given the amount of appropriate habitat available in the Commonwealth, more populations will continue to be discovered. With additional fieldwork planned along the shores of the Housatonic River in 2008 and 2009, we expect that NHESP will soon know of twenty or greater element occurrences for *Ranunculus pensylvanicus* (twenty occurrences is the typical threshold between the ranks of Threatened and Special Concern).

While this species does not appear to be in imminent danger of extirpation or even of becoming Endangered in the near future, there is still justification for listing the species in the category of “Special Concern”. In addition to having relatively few known occurrences statewide, many populations are small in size and are vulnerable to stochastic events. Large occurrences of *R. pensylvanicus* are uncommon in Massachusetts and appear to be related to disturbance events, such as water draw-downs exposing open shoreline, which may provide only temporary optimal conditions. In addition, nearly all occurrences are known to grow in association with the invasive *Lythrum salicaria* and/or *Phalaris arundinacea*, which may eventually threaten to out-compete *R. pensylvanicus* by forming dense monotypic stands.

(b) What is the extent of the species’ entire geographic range, and where within this range are Massachusetts populations (center or edge of range, or peripherally isolated)? Is the species a state or regional endemic?

***Ranunculus pensylvanicus* occurs in North America and eastern Asia, and is neither a state nor regional endemic. In North America, its range extends from Newfoundland west to Alaska, with the exception of the Yukon and Nunavut Territories, and south to Oregon, Illinois, and Maryland. There are also documented occurrences of it in Arizona, Colorado, and New Mexico.**

(7) Trends.

(c) Is the species decreasing (or increasing) in state distribution, number of occurrences, and/or population size? What is the reproductive status of populations? Is reproductive capacity naturally low? Has any long-term trend in these factors been documented?

The number of occurrences has been increasing due to additional survey effort in the habitats in which *R. pensylvanicus* occurs, indicating that this species is less rare than was previously thought. Because this buttercup is not a strict habitat specialist (rather, it can occur in a variety of wetland habitats), it is reasonable to expect that more populations will continue to be found in the future.

(8) Threats and vulnerability.

(d) What factors are driving a decreasing trend, or threatening reproductive status in the state? Please identify and describe any of the following threats, if present: habitat loss or degradation; predators, parasites, or competitors; species-targeted taking of individual organisms or disruption of breeding activity.

Excessive flooding or draining of habitat, and competition from stand-forming invasive species appear to be the greatest threats to this species of wetland edges and openings.

(e) Does the species have highly specialized habitat, resource needs, or other ecological requirements? Is dispersal ability poor?

Based on the variety of wetland habitats in which *Ranunculus pensylvanicus* is found, it does not appear to be highly habitat-specific. The cause of its rarity in Massachusetts is indeed perplexing. Little is known about the specific life history of this plant that might provide clues to its apparently limited distribution in Massachusetts.

(9) Conservation goals.

What specific conservation goals should be met in order to change the conservation status or to remove the species from the state list? Please address goals for any or all of the following:

(a) State distribution, number of occurrences (populations), population levels, and/or reproductive rates

In order to remove *R. pensylvanicus* from the MESA list, 50 or greater populations, with at least 35 of fair or better viability, should be documented in the Commonwealth.

(b) Amount of protected habitat and/or number of protected occurrences

(c) Management of protected habitat and/or occurrences

Literature cited, additional documentation, and comment

Benson, L. 1941. North American Ranunculi-II. *Bulletin of the Torrey Botanical Club*. 68: 477-490.

Crow, G.E. and C.B. Hellquist. 2000. *Aquatic and Wetland Plants of Northeastern North America*, Volume 1. University of Wisconsin Press. Madison, Wisconsin.

Linné, C. (editor). 1782. *Supplementum Plantarum Systematis Vegetabilium Editionis Decimae Tertiae, Generum Plantarum Editiones Sextae, et Specierum Plantarum Editionis Secundae*. Brunsvigae [Braunschweig]

Fernald, M.L. 1950. *Gray's Manual of Botany*. Eighth Edition. D. Van Nordstrom Co. New York.

Flora of North America Editorial Committee. 1997. *Flora of North America Volume 3. Magnoliophyta: Magnoliidae and Hamamelidae*. Oxford University Press.

